Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Feature Group IP Petition for Forbearance Pursuant to 47 U.S.C. §160(c) from Enforcement of 47 U.S.C. § 251(g), Rule 51.701(b)(1), and Rule 69.5(b)	)	WC Docket No. 07-256
In the Matter of Embarq Local Operating Companies Petition for Limited Forbearance Under 47 U.S.C. § 160(c) from Enforcement of Rule 69.5(a), 47 U.S.C. § 251(b), and Commission Orders on the ESP Exemption	)	WC Docket No. 08-8

COMMENTS OF THE OPEN INTERNET COALITION

IN SUPPORT OF THE FEATURE GROUP IP FORBEARANCE PETITION
-- and --
IN OPPOSITION TO THE EMBARQ FORBEARANCE PETITION

OPEN INTERNET COALITION

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EXECUTIVE SUMMARY

In these Comments, the Open Internet Coalition ("OIC") supports the Petition for Forbearance of Feature Group IP and opposes the Petition for Forbearance of Embarq Communications in the above-captioned proceedings.

The two Petitions propose radically different approaches to how emerging Internet communications should interconnect to the narrowband public-switched telephone network ("PSTN"). OIC is participating in these proceedings because we are concerned that the Commission's decision on either of these two Petitions will likely have profound and long-term consequences on the evolution and future of the Internet. While these proceedings are technically about "voice" applications that touch the PSTN, the OIC is concerned that entities terminating traffic on the PSTN will attempt to apply the same faulty logic and rules to every other application, once it is recognized and accepted that there really is no difference between voice or video or data or any other application in an Internet-enabled, digital communications world.

The Feature Group IP Forbearance Petition asks the Federal Communications Commission ("FCC") to ensure that consumers have the right and the opportunity to purchase Voice-Embedded Internet communications applications at prices that reflect the cost of offering the

services and with all available robust features without undue interference from the network owners.

Conversely, the Embarq Forbearance Petition asks the FCC to eliminate the Enhanced Service Provider ("ESP") status which currently permits ESP VoIP providers to purchase access to the network as any other business customer of the telecommunications carrier. A grant of the Embarq petition would make such ESPs telecommunications carriers, and thus subject to the full panoply of carrier regulation, including archaic and economically irrational access charges.[1]

A wrong decision in either of these seemingly arcane proceedings could serve to ensure, for many years to come, that phone companies – the primary gatekeepers to the Internet, be it via narrowband or broadband access -- may set the rates, terms and conditions for access to end-users. This battle over the price of a voice-embedded connection to an end-user on the narrowband public-switched telephone network is really just the camel's nose under the tent in the carriers' war to control access to end users.

This current attempt by the telephone companies ("telcos") to require consumers of Internet voice applications to pay above cost access rates to communicate with PSTN consumers is simply the most immediate effort by

[1] In the PSTN world, "access charges" refer to payments made by long-distance carriers to local service providers for originating and terminating calls on local telephone networks. These charges do not reflect the actual cost of origination and termination, but instead, are a regulatory scheme crafted by the FCC to continue the practice that originated prior to the break up of AT&T of subsidizing artificially low local service rates.

the phone companies to charge supra-competitive rates when an Internet communication to the narrowband network includes a voice component. If the FCC permits telcos/Internet Access Providers to impose access charges on Internet application providers and their consumers when a communication to the telcos' customer includes an IP voice application, we will have entered the slippery slope by which telcos' and other network owners will be allowed to charge consumers of Internet applications for all communications (be they voice, video, data or other). For now, the telcos claim that there are historic and current qualitative distinctions between voice and other communications that require disparate regulatory treatment for voice.[2] This is a technologically unsustainable charade based on the legacy distinctions between voice and other services. In an Internet-enabled world, this distinction does not persist.. If the telcos succeed in extracting economically irrational per minute access charges from Internet Application Providers and their consumers when the communication includes a "voice component", there is no reason the logic won't apply to all communications when a bit is truly recognized to be just a bit.

Not even the greatest visionaries among us can predict how Internet communications will revolutionize the ways in which we interact or what the killer applications of tomorrow might be, but it is clear that consumers will

[2] *In the Matter of Embarq Local Operating Companies Petition for Limited Forbearance Under 47 U.S.C. § 160(c) from Enforcement of Rule 69.5(a), 47 U.S.C. § 251(b), and Commission Orders on the ESP Exemption*, Petition for Forbearance, WC Docket No. 08-8 ("*Embarq Forbearance Petition*") iii-iv, 3-5, 8-11, *passim*.

not experience the full potential of the Internet if the Internet communications industry is saddled with archaic, economically irrational legacy regulations that simply serve to raise consumer prices, and, worse, throttle uptake of broadband services. The Commission must not permit the telcos to dictate interconnection policies and impose rates that were designed to replicate the subsidies that existed in a monopoly market. To do so installs the phone companies as *de facto* gatekeepers to the Internet.

Although the potential harm to consumers is immense, a few of the most obvious and immediate Internet user implications of either a denial of the Feature Group IP Petition or a grant of the Embarq Petition are the following:

- Stifle the growth and availability to consumers of any Internet-based "click-to-call" services, which virtually every Internet-based company has deployed or intends to deploy;
- Eliminate, or severely limit functionality of, other services that incidentally require a voice connection to a narrowband telephone customer. This would include such services as Internet search enabled call termination and Internet text to speech enabled applications;
- Curtail use and functionality of network-enabled collaboration calling whether from a game application or any other device-based network;
- Limit the network effects and power of Group Forming Networks that should be able to include any potential consumer on the communications network of networks, whether that consumer is utilizing a broadband or narrowband connection.

All Americans should be able to realize what happens when different networks interconnect and interoperate without intervening gatekeepers extracting excessive revenue to the detriment of the broader economic and social good. American consumers across all networks should share the value

that accrues from the combination of Reed's and Metcalf's law, but that can only be achieved when we create a ubiquitous, interoperable and seamlessly interconnected "network of networks", an integrated communications system in which no single network wields excessive control over the others by demanding non-reciprocal, technology-debilitating rents of all others merely so they can all intercommunicate. In an Internet-enabled world, consumers of narrowband PSTN service should not be precluded from fully participating in the digital Internet revolution.

OIC urges the FCC to hold the line here and now.

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I. Introduction

The Open Internet Coalition ("OIC")[3] submits these comments in support of the Petition for Forbearance of Feature Group IP *and* in opposition

[3] The Open Internet Coalition represents consumers, grassroots organizations, and businesses working in pursuit of a shared goal: keeping the Internet fast, open and accessible to all Americans. The OIC membership includes a broad cross-section of consumer groups, companies, entrepreneurs, innovators, Internet users and enthusiasts with the common objective of advancing the open nature of the Internet for the empowerment of users and to maximize the Internet experience. http://www.openinternetcoalition.com/

to the Petition for Forbearance of Embarq Communications in the above captioned proceedings.[4]

Feature Group IP asks the FCC (1) to ensure that consumers and users of "voice-embedded Internet communications"[5] services and applications be allowed to employ new Internet-based technologies and applications to the fullest extent possible and (2) to ensure that providers and enablers of voice-embedded Internet communications applications be given the assurance, important for continued investment in consumer-benefiting applications, that they may deploy and offer such services without the threat that the services will be mired in the archaic access charge quagmire that currently plagues legacy telecommunications.

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[4] In point of fact, the arguments raised in the Feature Group IP Petition and the Embarq Petition are distinct issues and not necessarily mutually exclusive. The Feature Group IP Petition speaks to enabling *new* Internet-based technologies, applications and services, while the Embarq Petition is focused on preservation of *legacy* telecom business model issues. The FCC could conceivably grant both petitions, by forbearing from applying the access charge regime to "voice-embedded Internet communications" and also by forbearing from applying the ESP exemption to IP-enabled voice calls to the PSTN that simply replicate traditional narrowband voice telephony. The Commission could also grant the Feature Group IP petition for all telcos without exception or with the exception of Embarq, while granting the Embarq Petition for all but Feature Group IP, or including Feature Group IP. There are a number of potential combinations. We, however, do not see society deriving any worthy social or economic good from granting the Embarq Petition and extending the access charge regime to those IP-based services that simply replicate traditional PSTN voice communications.

[5] We construe "voice-embedded Internet communications" as Internet-based applications that use voice applications as part of a larger Internet communications experience. We consider voice-embedded Internet communications as just one of many applications that can be transmitted in IP format, including applications that integrate voice with data, video, or other Internet-based applications and services. We think it is important for policymakers to recognize a qualitative difference between services that merely use IP technology to provide PSTN-equivalent offerings and services that embed IP-based voice applications as part of a larger, next-generation Internet communications experience.

Conversely, Embarq asks the FCC to eliminate the right of "Enhanced Service Providers" ("ESPs") to purchase access to the network as any other business customer rather than being subject to the broken access charge regime. . A grant of Embarq's petition would have the effect of making ESPs telecommunications carriers, and thus subject to the full panoply of carrier regulation, including interstate access charges. ESPs would no longer be considered "customers" of telecommunications carriers, and instead would become carriers themselves.

On the surface, both petitions seem to be about arcane issues of telecom intercarrier compensation, which should not interest Internet communications consumers or Internet Application Providers whose core businesses do not directly implicate traditional public switched telephone service. That certainly is what the telcos/phone companies/Internet Access Providers[6] would like Internet Application Providers and the FCC to believe. The truth, however, is that a wrong decision in either proceeding would perpetuate confusion over the rules governing the interconnection of broadband Internet communications to the narrowband PSTN and would, at

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[6] We use the terms "telco," "phone company," and "Internet Access Provider" interchangeably in this pleading, although the context really relates to the phone companies' role in allowing users of the narrowband PSTN to connect to users on the broadband Internet without excessive cost or complication or unnecessary diminution in service quality or functionality. Telcos are essentially *both* phone companies *and* Internet Access Providers and are gatekeepers in both contexts. The issues are essentially the same, although one might argue that phone companies only deal with "voice" on the narrowband PSTN. We will generally refer to the telcos as "Internet Access Providers" to capture the concept that what we are discussing is access *to* their users as well as access *by* their users -- whether narrowband or broadband -- to Internet communications networks.

a minimum, stall the development, evolution and ubiquity of Internet communications. Internet innovators, entrepreneurs and consumers cannot sit on the sidelines for this debate, while rules are established or rewritten that could have dramatic and long-lasting consequences on the scope and scale and reach of innovative and integrated Internet communications. This immediate battle over the price of a voice-embedded communication to a user on the narrowband PSTN is the camel's nose under the tent in the carriers' effort to control the rates, terms, and conditions and functionality of access to Internet users.

From OIC's perspective, the issue really is not merely about voice. Or even access to transmission media. The issue before the Commission is about information flow and communication, however that may be represented. The ability of users of IP services to reach customers on the PSTN is about Internet freedom. The imposition of access charges discourages, and in many instances, eliminates the consumer benefits delivered by the open Internet. The difference between narrowband and broadband access is really just a matter of degree – somewhat like the difference between paging and cellular -- one is "deep" and the other is "wide" (*e.g.*, cellular is real-time and faster, but paging has wider coverage and can be "heard" where cellular will never go.). The PSTN should be an Internet end-point like all others, even though it is not as fast and the edge devices are not always as capable. The edge device may or may not be intelligent. It could be any kind of Part 68 device,

but modern technology can make many IP-embedded features and functions work on the PSTN, albeit slower and slightly less robust and without a graphical user interface.

II. The Petitions in the Context of the Open Internet

We generally don't think about open Internet issues in the context of the PSTN, but the battle over the price of sending voice-embedded Internet communications to terminate to a user on the narrowband PSTN really is just another Open Internet concern. Charging one-way, excessive access rates to send traffic to the PSTN is essentially discrimination against a certain kind of "content" by charging more for a call "from" the Internet than a call "to" the Internet, and to charge more because it is "voice" rather than something else.[7]

Ultimately, the issues raised by these petitions are about network discrimination and attempts by telcos to appropriate for themselves all the value derived from Internet applications and services – value that would otherwise accrue to consumers and society – just because one end-point happens to be on the telco's narrowband network.

The point is that the services and applications on the Internet are "complementors"[8] and not necessarily "competitors" of the services provided

[7] As a technical matter, on the PSTN, every communication is ***all*** "voice" -- even if it is a modem or a fax. The latter two just have different pitch and modulation.
[8] A "complementor" is an application or the developer of the application that rides on a platform. The telco network is the platform, which serves as a primary product. More

by the telcos. It adds no value to society to allow telcos to extract supra-competitive access charges from Internet Application Providers and, by extension, their consumers, simply because the telcos still maintain monopoly access to the consumers of the narrowband PSTN.

The telco efforts to charge excessive, per minute rates when an Internet communication to the narrowband network includes a voice component is simply the most current and egregious example of an open Internet violation and misses the entire point of how the Internet could (and should) revolutionize the ways in which consumers communicate and interact. The future of telecom is far more about the services that will succeed voice. Unfortunately, from the telcos' perspective, the key business issue is how to extract payment from customers when voice, the most valuable service they receive, is a free feature of the basic broadband connectivity they buy. The way they do that is to use the following logical progression: (1) establish the precedent of charging excessive rates for Internet voice minutes; (2) point out the absurdity of distinguishing voice bits from other bitstreams; (3) extend the excessive, imbalanced charges for voice bits to all other bits.

When viewed in an even broader historical context, the "access charge" issue is simply the latest iteration of the ongoing debate now more than one hundred years old in the telecommunications industry, specifically, and in

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generally, a complementor is a firm that develops a "secondary" product and sales of that secondary product increases demand for the primary product. Internet applications actually make telco services more attractive.

public utility regulation, more generally, and must serve as a history lesson for Internet Application Providers, for consumer advocates and for modern regulators and policymakers. Unfortunately, the only entities with the institutional memory to recall these early battles over monopoly control over access markets and the ability to parlay that access into vertical services, is the incumbent telecom industry, and they certainly have no incentive to give the consumers an unbiased history lesson.

The Internet's technical architecture has been likened to "the telephone network turned inside out" *i.e.*, the management of Internet applications (*e.g.*, VoIP) is maintained at the edges of the network whereas the telephone network's applications (*e.g.*, caller ID) are managed by central office switches. The difference in this architecture is very significant: the development and deployment of the system to enable toll-free calls, for example, required considerable coordination with the incumbent telephone companies; by contrast, the development and deployment of peer-to-peer VoIP technology (*e.g.,* Skype) required no cooperation from the network providers, relying instead upon the decisions of millions of consumers to download and install a software program. Network providers can, however, turn innovative VoIP applications into "damaged goods" by asserting that such applications and services must pay the highest possible rate to communicate with the PSTN merely because it is "different" and has no phone number.

Concepts like Group Forming Networks ("GFNs"), [9] as considered in the Feature Group IP Petition, are a new species of communications, which

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[9] The concept of a Group Forming Network was first proposed by David Reed and is typically referred to as "Reed's Law". According to Reed:

> In networks like the Internet, Group Forming Networks (GFNs) are an important additional kind of network capability. A GFN has functionality that directly enables and supports affiliations (such as interest groups, clubs, meetings, communities) among subsets of its customers. Group tools and technologies (also called community tools) such as user-defined mailing lists, chat rooms, discussion groups, buddy lists, team rooms, trading rooms, user groups, market makers, and auction hosts, all have a common theme -- they allow small or large groups of network users to coalesce and to organize their communications around a common interest, issue, or goal. Sadly, the traditional telephone and broadcast/cable network frameworks provide no support for groups.
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> In "real" networks, it is important to note that although the total value of optional transactions that involve pairs and groups grows faster than linearly, the total price that can be paid cannot grow that fast. Typically, the consumers of the value have money and attention resources that scale linearly with N. So the law of supply and demand will kick in, lowering prices until the available resources (dollars and attention) are saturated. ... Once N grows sufficiently large, GFN transactions create more value per unit of network investment than peer transactions, and peer transactions create more value per unit of network investment than do broadcast transactions. So what tends to happen is that as networks grow, peer transactions out-compete broadcast content in the arena of attention and return on investment. And remarkably, once N gets sufficiently large, GFN transactions will out-compete both of the other categories. …
>
> … There is a strong correlation between the prosperity of national economies and social capital, which [is] define[d] culturally as the ease with which people in a particular culture can form new associations. There is a clear synergy between the sociability … and the technology and tools that support GFNs -- both are structural supports for association. As the scale of interaction grows more global via the Internet, isn't it possible that a combination of social capital and GFN capital will drive prosperity to those who recognize the value of network structures that support free and responsible association for common purposes?

http://www.reed.com/gfn/docs/reedslaw.html. Conversely, when network "owners" limit connectivity to create proprietary, poorly-connected domains that they control, group-forming is curtailed by barriers or rules that limit who may group with whom and we experience a "Reverse Reed's Law" effect, in which a minority of M members reduces potential value for all by a factor of 2^M. *See*, Jakob Nielson, *Metcalfe's Law in Reverse,* Alertbox, July 25, 1999. (www.useit.com/alertbox/990725.html).

did not exist even a few years ago, and which should be supported by forward-looking public policy. A grant of the Feature Group IP Petition and a denial of the Embarq Petition would serve to signal that the archaic, kluged intercarrier pricing regimes that have plagued and continue to plague telecom networks will not contaminate the evolution of Internet-enabled communications and interaction. The FCC is confronted with a profound opportunity to enable American consumers to benefit from the power of GFNs and the network effects that can only be fully realized when users have the ability to communicate efficiently and effectively across platforms and networks without any interceding gatekeeper precluding, limiting or overcharging for access to one piece of that network of networks.

In these Comments, OIC is urging the FCC to prohibit telcos from misapplying archaic pricing structures to stifle innovation, growth or evolution of Internet-based communications, be it voice or any other product or application. Like promotion of Universal Service, mobility, and availability of broadband capacity and ubiquity, promotion of innovative and integrated new technologies and applications should be a cornerstone of American public policy and a social and economic good that the FCC should make every effort to foster. Enabling voice-embedded Internet communications on both narrowband and broadband networks, as part of a larger Internet communications experience, is certainly in the public interest and would help drive further economic growth both online and offline.

III. Public Policy and the Consumer's Perspective

OIC believes that it is essential for the FCC to look at the issues raised in these petitions from the perspective of the consumer, and to consider simply what policy and rules are necessary (or extraneous) to maximize the consumer's communications experience. The FCC should not extend legacy telecommunications regulation originally developed to enable competition and protect consumers from monopolistic powers to the applications and services that promise to deliver the aforementioned competition and consumer empowerment. Any economic regulatory schemes that currently apply to telecom carriers should not be extended so as to interfere with the user's ability to harness the Internet and evolving communications networks and systems to the maximum benefit of the consumer and for the broader economic and public good. OIC believes the FCC has the opportunity within the context of these two Forbearance Petitions to signal to the industry, to American consumers and to the world, that America recognizes the potential of the Internet, of digital technology and of the evolving nature of communications networks and systems to advance the network effects, to allow for the creation of group forming networks and to ensure that users of the Internet and communications networks benefit from the innovation that will revolutionize the ways in which we communicate and interact.

From the consumer's perspective, there really is no distinction between using a broadband network or a narrowband network to communicate by and

between others via the Internet, beyond the obvious quality distinctions that are simply a matter of the varying speeds and capacities of narrowband vs. broadband access. Quite simply, there is no logical, forward-looking policy objective that might be served by allowing network operators to adversely affect the user's experience by precluding or limiting, or by effectively precluding or limiting (through supra-competitive access rates), a user from participating in Internet-based communications. The FCC should ensure that legacy arbitrary regulatory distinctions do not contaminate emerging and evolving Internet communications.

The issue implicated in these petitions is not about some alternative "provider" getting access to the telcos' network or its captive customers. The issue implicated is about *users* communicating with other *users* across networks to maximize the communications experience, regardless of whether a particular user is relegated to the PSTN -- the limited-functioning, narrowband off-ramp on the Internet-enabled network of networks.

The foregoing is so regardless of who "calls" whom. That is to say, the direction of the "call" should not be relevant. The call to the PSTN may be as simple as an advisory of an Internet denizen's presence or contact -- so the PSTN user may then initiate communications with the Internet. The notion of a "calling party" becomes largely irrelevant in an Internet-enabled world. In the Internet world, the "originating" party is not necessarily the party that initiates the session; the originating party is the party sending a particular

packet burst, and, while it is not always balanced, there is bi-directional information flow such that both (or multiple parties) are beneficiaries of the communication. Thus, the notion of calling party pays because the calling party benefits is an archaic policy position in the world of Internet-enabled, multi-modal communications. The FCC has already learned this truism in the context of the evolution of mobile communications. Both end-points derive value. Strangely, the telcos do not even seem to acknowledge that there is value in the network of Internet communications, or that their customers get value out of talking to Internet-based consumers. Embarq, in fact, claims that the ESP exemption has given one class of voice consumers an unfair advantage because it originates on an IP network. Embarq calls it "free riding on the PSTN"[10], and at another point Embarq claims that without grant of its petition "rural consumers lacking access to broadband services would be obliged to *subsidize* VoIP providers and consumers."[11] These arguments ignore the facts that Embarq and other LECs are fairly compensated for the use of their networks and that if forced to pay access charges, consumers would be paying implicit subsidies in a misguided regulatory effort to perpetuate a scheme that permits the terminating LECs to act as gatekeepers on the narrowband off-ramp.

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[10] *Embarq Forbearance Petition* at 23.
[11] *Id.* at fn. 58.

IV. The Potential and Evolution of Voice-embedded Internet Communications

Voice-embedded Internet communications, both Internet-Internet and Internet-PSTN, allows an Internet application to, among other things:

- uniquely identify consumers and user groups without the need for "phone numbers", thus extending the positive economic effect of GFNs to the users of the legacy PSTN;
- integrate voice transmission with much more powerful data processing capabilities that then facilitate the offering of additional enhanced functionalities;
- integrate voice, data and video applications;
- detect a user's "presence" on a network;
- route communications according to sophisticated user-specified preferences, including variations by time of day, calling party identifier, and any other parameter that can be defined through a computerized database;
- protect the privacy and safety of individuals by means of customized call screening and routing;
- support "one-to-many" communications sessions, including the ability to "ring" several simultaneous edge devices using only one called party address, or to intelligently route call session requests to the appropriate edge device depending on user-supplied instructions;
- support "many-to-one" communications sessions;
- support "any-to-any" communications sessions (*e.g.*, bridging various platforms and edge devices, including traditional telephones, such as a traditional land-line telephone engaging in a call session with a user of an instant messaging application);
- support communications sessions that mix voice, video, text, or other data communication applications, voice call session interruption and an invocation of different network resources, such as retrieving real-time or stored information from the Internet (such as stock quotes, or driving directions);
- support talking email or text voice mail, using speech-to-text conversion or text-to-speech conversion; and
- provide real-time language translation.

We cannot predict the profound applications that will come to fruition if the Internet communications innovators are allowed to innovate without

being beholden to the supra-competitive charges of the gatekeepers to the narrowband customers. Existing and evolving Internet voice applications, however, give us a glimpse of the potential of unbridled Internet-PSTN voice-embedded Internet communications.

- Group Forming Networks. GFNs will be allowed to integrate the legacy PSTN to uniquely identify consumers and user groups without the need for "phone numbers," thus extending the positive economic effect of GFNs to the users of the legacy PSTN, all with no investment by the incumbents. Internet application creators and providers have just begun to tap into the social and economic impacts of GFNs and how such GFNs can interoperate by incorporating the old technology networks and their use and usefulness. The artificial partitioning and exclusion of GFNs from the PSTN will inhibit their development and limit their manifold economic and social benefits to society.

- Innovative Tele-Working. With Voice-embedded IP, employees are less tied to schedules and geographic brick-and-mortar offices.

- For instance, a stay-at-home parent who works in technical support could use Voice-embedded IP to direct incoming calls to his home office between the hours of 8:00 a.m. and 3:00 p.m., while his children are at school. During that "on" period, he could receive tech support calls at home, with full access to customer and product data. Periodic workers, regardless of time of day or length of availability, could log on to the network and work flexible hours.

- This flexibility will allow telecommunications-intensive companies to use part-time employees spread out across the country. For example, a call that originates in Denver for an airline may first go through a voice response unit owned by the airline. Based on staffing, call volume or other criteria that the airline selects, that communication may be sent across the country to a large call center or to part-time employees located in rural and urban areas.

- A physician might use the same capabilities to respond to patient emergency calls at home, with full access to patient records stored in her office, and have the ability to alert the system that she is not available for calls (they would be routed to a colleague), or direct that the "call" be forwarded to a cell phone or wireless PDA.

- Multimedia and Cross-media Conferencing. With Voice-embedded IP, multiple consumers can communicate with one another via voice and video, while drawing on data sources (spreadsheets, financial statements, etc.) simultaneously. IP-PSTN voice communications would support a flexible conferencing platform, allowing some attendees to participate via traditional circuit-switched devices (such as a wireless PDA, thereby combining circuit-switched voice, such as GSM, with Internet access over WiFi or GPRS), while others use voice and data capabilities embedded in an IP-capable desktop.

- Workgroups and play groups that are geographically dispersed can work collectively on specific data-oriented tasks. As one example, an engineering team with expertise spread around the world can collaborate via voice and share data and documents in real time to revise design specifications.

- A university board with trustees in different cities can meet efficiently and effectively via videoconference (again, some in person, some on the phone, and others via computer). At the meeting, participants can collectively review charts, access databases, and compile reports, all in real time. Simultaneously, two or more of the participants can "instant message" each other or hold a separate and private voice conversation.

- A geographically dispersed family could meet to share family digital photos or videos of grandchildren performing in a school play, while exchanging comments as if they were together in person.

- Friends can also use the cross-media applications for entertainment, be it via appliance-based games such as Wii, Playstation, XBox,[12] or be it via application-based games.

- High-Power Call Centers. Voice-embedded IP communications allow entities providing customer service to offer more focused assistance to customers. For customers with broadband access to the Internet, companies can share data, instant messages, voice communications, and URLs in real time. For all customers, IP-based communications technology with a voice application allows the operator to receive the customer's voice communication and relevant customer data simultaneously. The operator can access case histories, account and credit information, inventory data, shipping info, and much more

[12] XBox and PlayStation online gaming constitutes a kind of group forming network. Whose interest does it serve to preclude or overcharge XBox, for example, from connecting to the PSTN simply because there is no standard telephone number associated with the application/device/service?

instantly and automatically at the exact moment the customer makes contact (whether by circuit-switched or IP device).

- Unified Messaging. Voice-embedded IP allows a user to have a single message platform for all types of communications. Rather than receive e-mail on a computer, voice-mail on the phone, faxes on fax machines, and pages on a pager, Voice-embedded IP can route them all to a single unified mailbox, and consumers can retrieve them all from a single point of contact, whether using an IP or a circuit-switched device. A voice-mail can be converted into text using voice recognition software, and an e-mail can be converted into a voice message. Consumers can organize, store, and prioritize these messages in the manner that suits them best, just like many computer users file e-mail messages in various folders, or screen e- mail messages from some senders and give high priority to others. Consumers can tell the network how, when and where they want to be notified – such as ensuring that a call from a doctor or teacher is routed to home, work, mobile phone or to computer desktop, depending on where a person is, the time of day, and if the particular devices are actually turned on.[13]

- Expanded Call Management and Screening Unlike the PSTN, which can handle no more than two incoming voice calls at one time, Voice-embedded IP can manage limitless incoming voice calls, video feeds, and e-mails. Voice-embedded IP can handle these incoming communications in a variety of ways, depending on the user's preferences. The system can take a voice message, page the user, convert a voice message to text (or a text message to voice), route the communication to another end-point, or deliver the communication in another format. Moreover, Voice-embedded IP users can retrieve messages in one format (*e.g.*, text) while actively using another (*e.g.*, voice). Thus, while a PSTN user must wait until a call is completed to check on messages that came in while the call was underway, Voice-embedded IP allows consumers to convert those messages into text and retrieve them immediately or to play them in audio format on top of the ongoing connection. Expanded call management and screening also serves an important safety function. For example, victims of stalking can screen all calls from unrecognized phone numbers and forward

[13] One pioneering example of a unified messaging service is that provided by Grand Central (www.grandcentral.com). With GrandCentral, the user can be reached with a single number, answer a call at any phone she wants, seamlessly switch phones in the middle of a call, and know whether a call is important before taking it. The user can check her messages by phone, email, or online; keep all her messages online for eternity; record and store her phone calls (just like voicemail); quickly and discreetly block an annoying caller; click-to-dial from her address book; surprise callers with a custom voicemail greeting; forward, download, and add notes to messages.

them to the police or a security agency. Additionally, voice recognition capabilities can live inside the network and make the network more valuable, similar to how Google has made the surfing experience better tailored and more responsive to the specific user.

- Availability Awareness. On the PSTN, callers dial a number without knowing whether the party on the other end is available, whether the caller will have to leave a message, or whether the line will just ring and ring. Voice-embedded IP, by contrast, allows consumers to specify their availability. In other words, Voice-embedded IP customers can indicate that they are free for a voice conversation, for video-conferencing, for e-mail, for gaming, or that they are not available at all. Voice-embedded IP customers can also use this technology to wait until people are actually available to receive calls before contacting them, or to alert all attendees when everyone is available for a virtual conference.

- Location Scheduling. Voice-embedded IP consumers can create a daily location schedule (and update it anytime from anywhere) indicating where communications should be forwarded. In other words, an user could direct communications (of any form) to a mobile device during her commute, to her office during the day, to her brother's house during the holidays, and to a unified messaging center when she is eating dinner. As explained below, the user's configuration preferences stay with her wherever she may be when she accesses the platform.

- Simplified Relocation. Voice-embedded IP makes moves and changes much less complicated and less expensive. For instance, to allow an employee using a circuit-switched phone to move offices, a company must map extensions, re-program special call-handling features, and activate new phone sets, and the employee's phone configurations have to be re-modified or re-customized. Voice-embedded IP simplifies the process. Employees moving to an office in another country (or, for that matter, families moving to another state) take their customized features with them automatically because Voice-embedded IP configuration data is tied to the user rather than a physical extension.

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Any or all of these applications could trigger the killer applications of the next generation of communications. Frankly, the potential list of enhanced functions is limitless under a forward-looking regulatory regime

that fosters innovation. There is no reason to stifle the evolution of these applications or limit the network effects only to those consumers with unfettered broadband Internet access. Each of these enhanced functions can be offered to consumers with only narrowband capacity. Each of these applications has the potential to exponentially drive use of networks and greater economic and social opportunities. This is all symptomatic of the generative nature of the Internet and the externalities derived from the creation of the broadest conception of the network of networks and the communications system.

In order to maximize the power of the Internet and digital technology to transform communications, regulators must be vigilant to ensure that carriers may not take actions that are privately beneficial but detrimental to the broader economic and social good. A company's default position (and its fiduciary obligation to its shareholders) is to protect existing markets or related commercial investments and relationships and to reduce the incentives of other firms to conduct economic experiments that could create value. The company, itself, cannot be blamed for taking this strident position. This is the nature of enlightened self-interest in a functioning capitalist economy. By the same token, however, government must not allow such behavior when the behavior interferes with the broader social and economic good.

V. The Inevitable Downside of Allowing the Telcos to Charge Access Rates for Voice-Embedded Internet Communications to Reach Consumers

Because Internet-based technology allows for decentralized direction and innovation, Internet-originated and/or terminated voice services have seen and are likely to continue to see faster innovation than circuit-switched networks. Voice-embedded Internet communications could be an engine of innovation and growth, properly placing circuit-switched communications platforms logically underneath the superior Internet applications that provide a more useful communications experience for their users.

On the downside and as Shane Greenstein, Professor of Management and Strategy at the Kellogg School of Management, Northwestern University, put it, "[p]articularly worrisome are situations where carriers take actions that are privately beneficial -- either to protect existing markets or related commercial investments and relationships -- and have the consequence of reducing the incentives of other firms to conduct economic experiments that could create value."[14] This will certainly be the case if the telcos are allowed to set the rates, terms, conditions and functionality of voice-embedded communications to the narrowband network.

In addition to stifling the innovative applications and process considered above, the most obvious and immediate implications of either a

[14] Shane Greenstein, *Economic Experiments and Neutrality in Internet Access* 42 (Nat'l Bureau of Econ. Research, Working Paper No. 13158, 2007), note 109, at 40 *available at* http://www.nber.org/papers/w13158. supra.

denial of the Feature Group IP Petition or a grant of the Embarq Petition would be the following:

- stifling the growth of any Internet-based "click-to-call" services, which virtually every Internet-based company has deployed or intends to deploy (perhaps the most notable example is Amazon's "click-to-call service")
- eliminating, or severely limiting the functionality of services that incidentally require a voice connection to a narrowband telephone customer. This would include such services as the following:
    - Internet search enabled call termination
    - Internet text to speech enabled applications
    - FaceBook or MySpace's "SkypeOut"-type functionalities
- curtailing the use and functionality of network-enabled collaboration calling.

VI. Pricing for Internet Communications

To date, the OIC has not been actively engaged in the complex debates over the proper approach to pricing interconnection between telecommunications providers and others seeking to connect to the PSTN. Internet communications entrepreneurs and consumers, however, have become collateral damage in the wars over compensation that have waged for more than ten years between telecommunications carriers in efforts to extract as much inter-carrier revenue from one another as possible, often at the expense of the greater economic and social good.

It does not take a regulatory economist to recognize that there is no broad economic or social value derived from allowing the controller of the access facility to charge supra-competitive rates to Internet Application Providers and, by extension, the users of such networks and applications. If

the FCC's goal is, indeed, to eliminate arbitrage opportunities and to maximize the value and capabilities of all communications, the FCC should move to ensure that users of Internet communications can more efficiently and more cost-effectively reach users of the narrowband PSTN, and vice versa.

Certainly, there is no reason to allow telcos to self-determine (or to hide behind access rates designed for the pre-Internet Age) that the appropriate rate for Internet communications without a geographically-tagged identifier should be the highest access rate (typically *intra*-state toll). The telcos seem to ignore the fact that the Internet has no technical or business reason whatsoever to "geographicalize" service and that attempts to do so inhibit competition and innovation both of which benefit America and all network consumers in different ways. Good public policy dictates that the economics of interconnection and compensation must be separated from the social policy goals embedded in the economically irrational access charge regime. Frankly, it seems irreconcilable and profoundly illogical to the innovators, entrepreneurs and users of Internet-based communications that when a user of an Internet-based network needs to reach a counterpart on the narrowband PSTN, additional fees somehow apply, particularly given the fact that there is much less functionality on the narrowband PSTN. The telcos, however, do not seem to recognize the value that disintermediated Internet applications bring to their narrowband customers.

All consumers (new technology and old technology) can benefit from the network effects created by interconnecting and interoperating the Internet and the PSTN in the most technologically and economically efficient manner. Legacy PSTN service no longer represents technological efficiency by any means. It simply makes no public policy sense to allow narrowband PSTN providers to prevent their customers from fully participating in the Internet communications revolution. Critically, the FCC must not permit telcos and other Internet access providers from determining whether narrowband consumers are able to communicate with their broadband counterparts. Public policy should ensure that narrowband customers are allowed to participate in the network effects and the evolutionary and revolutionary consequences of Internet-based communications

VII. The Slippery Slope of Regulation and Access: What applies to voice today will set a precedent for other applications tomorrow

There have been accusations in the context of the Internet Freedom debates that the telcos want to extend their dominance of the access market into control of the applications market. We take no position on this argument within this pleading. The one point that should be obvious to policymakers, however, is that the legacy constructs that have governed interconnection by and among telecom carriers is irreparably broken, must be fixed, and must not be extended to the Internet.

If the telcos/Internet Access Providers are allowed to charge the Internet application providers when a communication to the carriers' customer includes a voice application, we will have entered the slippery slope by which carriers will be allowed to charge Internet application providers for all user communications (be they voice, video, data or other). For now, the telcos claim that there are historic and current qualitative distinctions between voice and other communications that require disparate regulatory treatment for voice. This is a technologically unsustainable charade based on the legacy distinctions between voice and other services. In an Internet-enabled world, this distinction cannot persist, and when regulators recognize that the distinction cannot persist, it will be much easier for the access providers to segue into charging for all communications if they have their foot in the door and a regulatory conclusion that Internet-delivered voice is subject to access charges by the access provider. The better principle is simply to give the consumer full access to the paid for capacity, and let the user determine how best to use and control their Internet access.

In any event, the Open Internet Coalition asks that the FCC hold the line here and now. If the Access Providers succeed in extracting usurious per minute access revenue from Internet Application Providers when the communication includes a "voice component", there is no reason the logic won't apply to all communications when a bit is truly recognized to be just a bit. Internet Application Providers need bargaining leverage against the

Access Providers in order to realize the full promise of the broadband Internet experience, and allowing the Access Providers to win this first battle will send the industry and the Internet down a path in which the Access Providers will have all the leverage.

If the FCC permits telcos/Internet Access Providers to impose access charges on Internet application providers and their consumers when a communication to the telcos' customer includes an Internet voice application, it will raise the cost to broadband users who want to talk with their analog counterparts – thus putting a toll booth on the digital transition. With regard to free services and applications, this could mean the difference between whether the services can even be economically offered to consumers.

VIII. Conclusion

The OCI is concerned that without clear, forward-looking principles, enabling innovation of Internet-based communications technologies and applications, America shall slip further down in the ranks of nations harnessing the Internet and advanced communications as a tool for business and the social good if incumbents persist in trying to maintain rigid control of their users' available communications choices by even more strongly yoking our society to legacy technologies and business models. Government policy should ensure that networks may seamlessly interoperate with the Internet.

It is telling that telecom providers charge Internet application providers for access to narrowband consumers, rather than the other way around. Do users of the broadband Internet receive inordinate value to reach the PSTN? Isn't the value derived equally in both directions? Why don't Internet Application Providers charge controllers of access to narrowband customers to allow narrowband customers to reach Internet applications? The answer is simply because telecom providers still wield excessive control over captive consumers of narrowband services. The day may logically come when the Internet charges telecom carriers so that their narrowband customers have the privilege to communicate with the Internet. This scenario is almost as problematic for allowing society to realize the benefits of the network effects and GFNs.

All Americans should be able to realize what happens when different networks interconnect and interoperate without intervening gatekeepers extract excessive revenue to the detriment of the broader economic and social good. American consumers across all networks should can all share the value that accrues from the combination of Reed's and Metcalf's law, but that can only be achieved when we create a ubiquitous, interoperable and seamlessly interconnected "network of networks", an integrated communications system in which no single network wields excessive control over the others by demanding non-reciprocal, arbitrage-creating, technology-debilitating rents of all others merely so they can all intercommunicate. In an Internet-enabled

world, consumers of narrowband PSTN service should not be precluded from fully participating in the digital Internet revolution.

By granting the Feature Group IP Petition and denying the Embarq Petition, the FCC will set the guide path to promote invention and innovation and protect the natural GFNs. The FCC must not allow the telcos to take self-serving action to mute the pro-competition mandate of the Telecom Act. The FCC must not allow new technology concepts and economic value to be swallowed by the decades old regimes of intercarrier compensation and embedded rate cross-subsidies.

We are confident that the FCC will rule expeditiously and in a manner that brings us closer to the day when we may maximize the power of the Internet to enhance the nature and value of communications for American consumers.

Respectfully Submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on this 19th day of February, 2008, a true and correct copy of the foregoing Comments of the Open Internet Coalition was served electronically on the following:

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